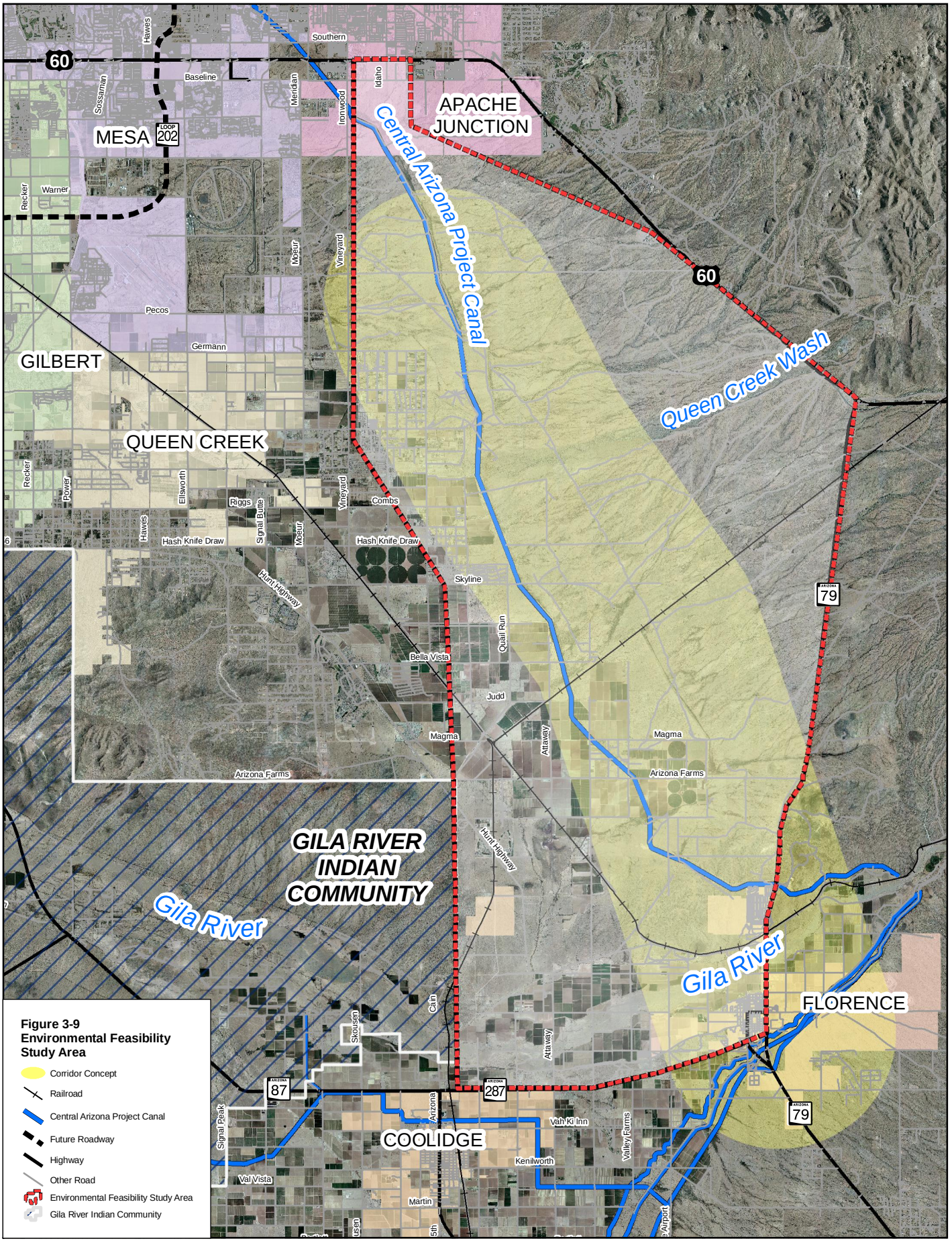
3.4 Social and Environmental Opportunities and Constraints

The purpose of the social and environmental feasibility analysis is to describe the existing social and environmental conditions within the proposed Pinal County Corridor Study Area, and to identify potential environmental concerns for future development of the Corridor Concept within the study area. Information presented within this environmental analysis is based on the existing data sources from local, county, state, and federal agencies. This analysis is not intended to meet the requirements of the National Environmental Policy Act (NEPA).

This analysis documents the socioeconomic environment, physical and natural environmental character, cultural resources, and section 4(f) resources of the Transportation Act in the study area. Existing environmental conditions within the study area have been evaluated to identify potential "fatal flaws," obstacles, issues, and sensitive areas for future improvements. This analysis also addresses surveying, permitting, and agency coordination requirements that would need to be addressed in future studies prepared in accordance with NEPA.

3.4.1 Environmental Conditions Study Area

For the purpose of the social and environmental feasibility analysis, the study area is defined roughly by US-60 on the north and northeast, SR-79 on the east, Ironwood Drive alignment and Attaway Road alignment on the west, and just south of SR-287 (Coolidge and Florence) on the south. The entire environmental feasibility analysis study area is within Pinal County, Arizona, and is shown in **Figure 3-9,** *Environmental Feasibility Study Area*.


APACHE JUNCTION
MESA
GILBERT
QUEEN CREEK
COOLIDGE
FLORENCE
GILA RIVER INDIAN COMMUNITY
Central Arizona Project Canal
Queen Creek Wash
Gila River
Gila River
60
60
202
79
79
87
287
Hawes
Southern
Baseline
Meridian
Idaho
Ironwood
Sossaman
Recker
Warner
Moeur
Vineyard
Pecos
Germann
Power
Ellsworth
Riggs
Signal Butte
Combs
Hash Knife Draw
Hash Knife Draw
Hunt Highway
Skyline
Quail Run
Bella Vista
Judd
Magma
Attaway
Magma
Arizona Farms
Arizona Farms
Hunt Highway
Cain
Skousen
Attaway
Arizona
Signal Peak
Val Vista
Vah Ki Inn
Kenilworth
Valley Farms
Martin
Airport
5th
Figure 3-9
Environmental Feasibility Study Area
Corridor Concept
Railroad
Central Arizona Project Canal
Future Roadway
Highway
Other Road
Environmental Feasibility Study Area
Gila River Indian Community
N
0 1 2 3 4 5 Miles
Data Source:
Arizona Land Resource Information System
PINAL COUNTY CORRIDORS DEFINITION STUDY
Kimley-Horn and Associates, Inc.
ADOT

3.4.2 Socioeconomic Conditions

Discussion of the socioeconomic environment of the study area includes an overview of the demographic composition of the area. Title VI and Environmental Justice considerations were identified using the U.S. Department of Commerce, Bureau of the Census 2000 Census of Population and Housing.

The demographic composition of the study area was calculated using the U.S. Department of Commerce, Bureau of the Census 2000. Census tracts and block groups within these tracts are large, relatively permanent statistical subdivisions that do not cross county boundaries. The size of the census tracts varies widely, depending on the density of settlement. Census tracts are delineated with the intention of being maintained over a long time, allowing statistical comparisons from census to census. Block groups are geographic subdivisions of census tracts; their primary purpose is to provide a geographic summary unit for census block data. A block group must comprise a reasonably compact and contiguous cluster of census blocks. Each census tract contains a minimum of one block group and may have a maximum of nine block groups. For the purposes of this analysis, the demographic composition is limited to census tracts. The study area lies within seven census tracks. The boundaries of some tracts extend beyond the study area; therefore, the exact population and demographic characteristics of the study area may vary from the represented census tract data. It is important to note that the greater Phoenix metropolitan area experiences significant seasonal changes in resident population, because many winter-only visitors populate various communities.

3.4.2.1 Race and Population

The four census tracts within the environmental feasibility study area contain 49,259 persons (2000 Census), the majority of whom are white with an average of 68 percent of the population throughout the seven census tracts **(Table 3-2, Figure 3-10a** *Socioeconomic /Census Data, Race***).** Hispanic, which is considered an ethnicity rather than a race, represents the largest minority population with an average of 24 percent of the population throughout the seven census tracts. The percent minority populations within the study area are much lower than the average racial composition of Pinal County. The shaded numbers in **Table 3-3** indicate those percentages that are higher than those represented for the County.

3.4.2.2 Title VI/Environmental Justice Populations

Title VI of the Civil Rights Act of 1964 and related statutes assure that individuals are not excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving federal financial assistance on the basis of race, color, national origin, age, sex, and disability. "Executive Order 12898" on Environmental Justice, dated February 11, 1994, directs that programs, policies, and activities not have a disproportionately high and adverse human health and environmental effect on minority and low-income populations.

"Executive Order 12898", "Federal actions address minority populations and low-income populations", reaffirms the principles of Title VI and related statutes. The Executive Order requires the consideration of low-income, minority, disabled, female, and elderly populations. A minority person refers to a person who is racially classified as Black or African American, American Indian or Alaska Native, Asian,

Native Hawaiian or Other Pacific Islander, or anyone who classifies himself or herself as "Other" or "Two or More Races." Hispanics are also considered minorities regardless of their racial affiliation. Elderly refers to individuals 60 years of age or over. Low-income households include those families whose median household income is at or below the Department of Health and Human Services poverty guidelines. Noninstitutionalized civilians are considered disabled if they report a sensory disability, physical disability, mental disability, self-care disability, go-outside-home disability, or employment disability.

Title VI/Environmental Justice populations are relatively high within the study area (**Table 3-5. Figure 3-10b,** *Socioeconomic / Census Data Age 60 yrs and Older, Poverty, Disabled, and Female Head of Household*). Female heads of household in census tracts 2.02 and 9 are slightly higher than listed for the County. However, female heads of household in census tracts 3.06 and 10 are significantly higher than that of the County. The percentage of disabled individuals was also much higher within census tracts 3.06 and 10 than that for the County. The average percentage for low-income households within the study area is lower than the comparable percentage for the County. However, census tract 10 has a higher percentage of households below the poverty level. The percentage of elderly within study area is fairly consistent with that of the County. The percentage of elderly within census tract 3.06 is substantially higher than that for the County.

3.4.3.3 Existing Socioeconomic Environment Conclusions

The study area is predominantly White with an average 24 percent being Hispanic within the seven census tracts. The percentage of disabled individuals is much higher within census tracts 3.06 and 11 than in Pinal County. The average percentage for low-income households within the study area is lower than the comparable percentage for Pinal County, with the exception of census tract 10. The percentage of elderly within census tract 3.06 is much higher than that for Pinal County. The percentage of female head of household within census tracts 3.06 and 11 is much higher than that for Pinal County.

Table 3-2 – 2000 Population and Racial Demographics

Area	Total Population	White (%)	Black or African American (%)	American Indian and Alaska Native (%)	Asian (%)	Native Hawaiian and Other Pacific Islander (%)	Other (%)	Two or More Races (%)	Hispanic (%)
Pinal County	179,727	58.8	2.6	6.5	0.5	0.1	0.1	1.4	30.0
Census Tract 2.02	5,962	67.9	.69	0.7	0.4	0.3	--	1.1	28.9
Census Tract 3.06	7,585	91.5	.71	0.4	0.6	0.06	0.03	0.9	5.7
Census Tract 9	7,134	43.8	6.7	5.8	1.0	0.01	0.6	1.1	41.0
Census Tract 10	4,990	38.4	9.5	5.8	0.4	0.02	0.06	1.2	44.6

Source: U.S. Department of Commerce: Bureau of the Census, 2000. Census 2000 Summary File 1 (SF-1).

Table 3-3 – Age 60 Years and Over, Below Poverty Level, and Female Head of Household Populations

Area (Tract)	Age 60 Years and Over		Below Poverty Level		Disabled		Female Head of Household	
	Number	%	Number	%	Number	%	Number	%
Pinal County	38,665	21.5	27,816	16.9	35,207	22.9	8,086	4.9
Census Tract 2.02	699	11.7	720	12.2	1,677	28.1	440	7.4
Census Tract 3.06	4,085	53.8	647	8.5	3,679	48.5	987	13.0
Census Tract 9	530	7.4	339	9.3	1,345	18.8	564	8.0
Census Tract 10	777	15.6	1,564	31.5	2,616	52.4	617	12.4

Source: U.S. Department of Commerce: Bureau of the Census, 2000. Census 2000 Summary File 1 (SF-1)

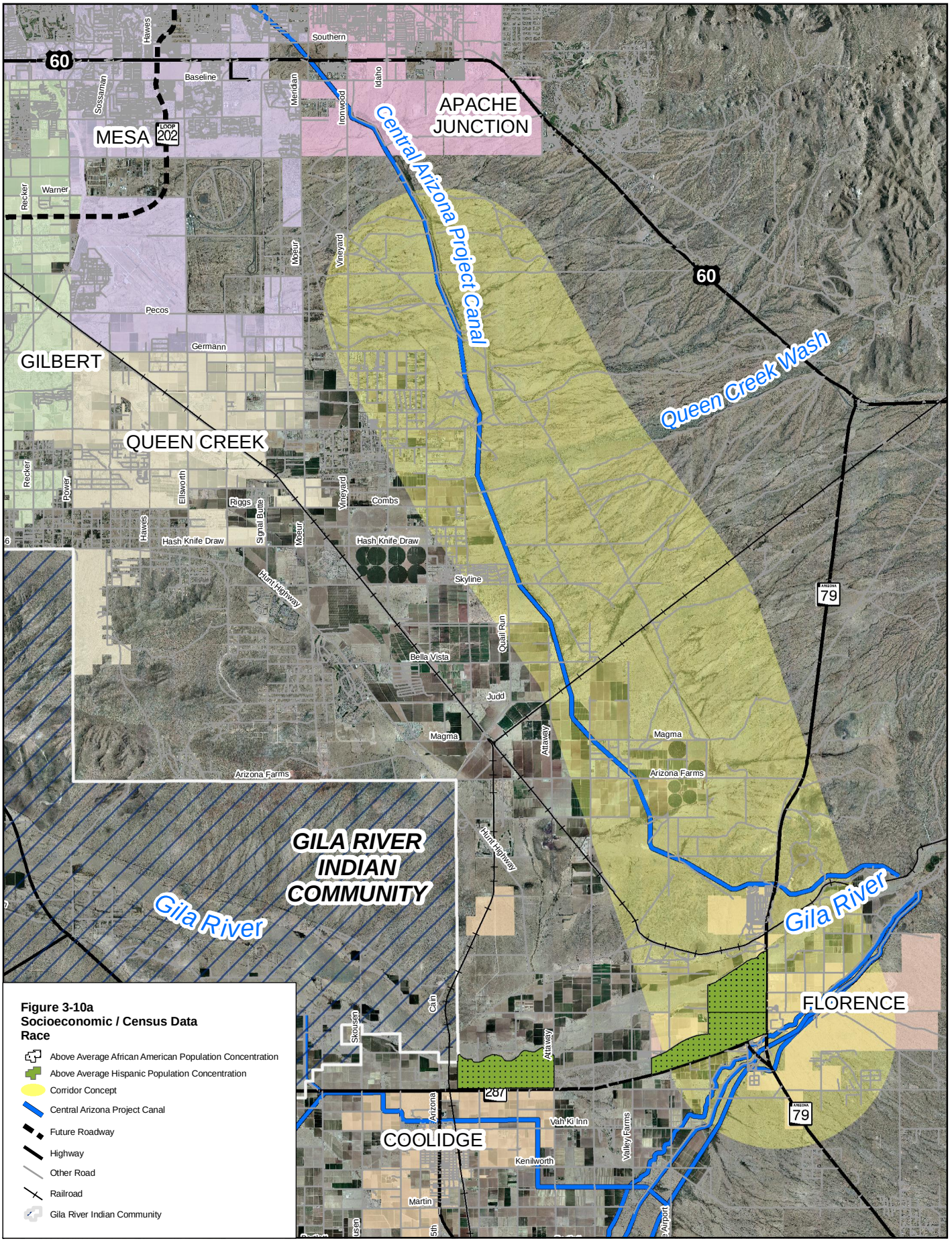


Figure 3-10a
Socioeconomic / Census Data
Race

- Above Average African American Population Concentration
- Above Average Hispanic Population Concentration
- Corridor Concept
- Central Arizona Project Canal
- Future Roadway
- Highway
- Other Road
- Railroad
- Gila River Indian Community

N

0 1 2 3 4 5 Miles

Data Source:
Arizona Land Resource Information System,
U.S. Department of Commerce: Bureau of the Census, 2000

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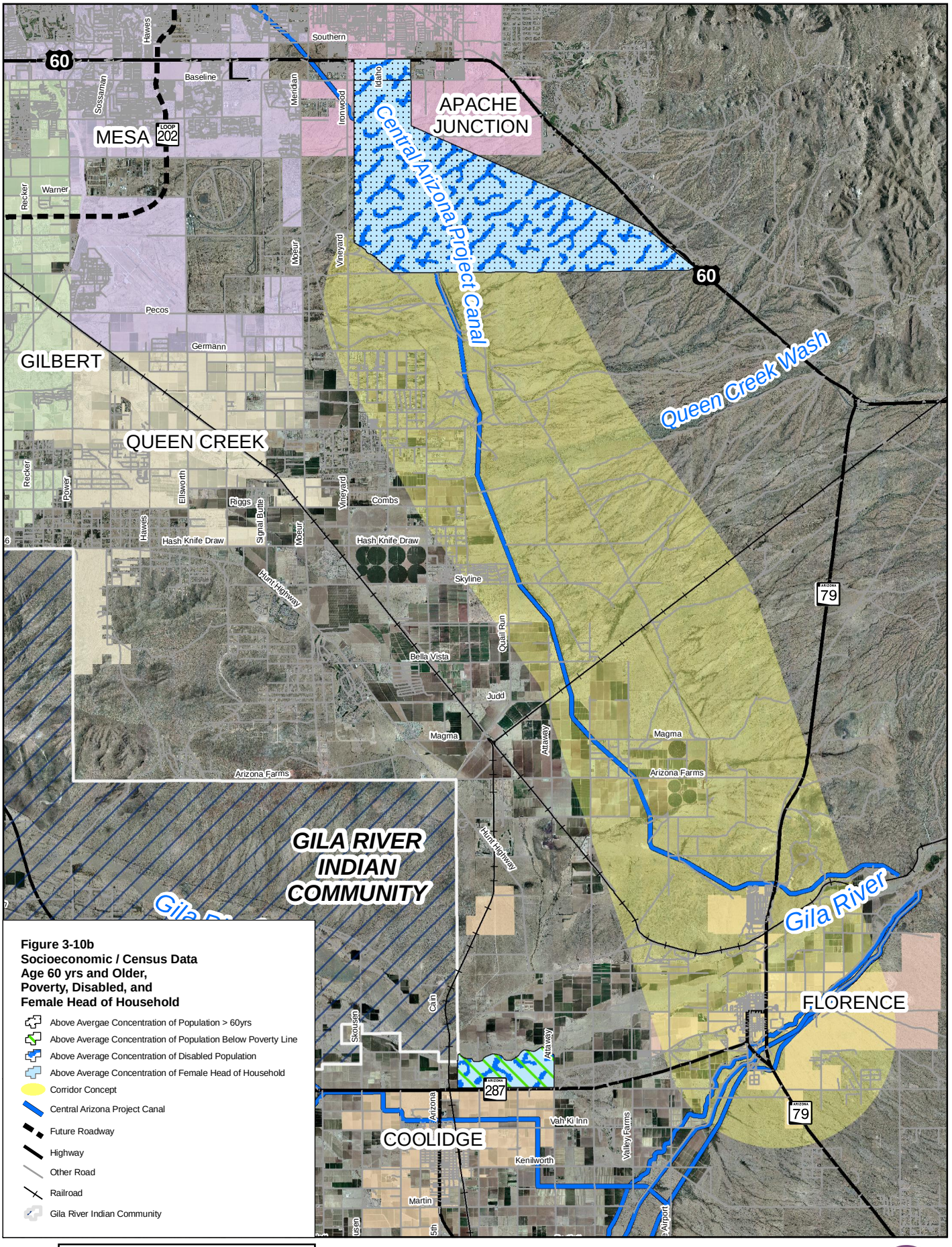

Figure 3-10b
Socioeconomic / Census Data
Age 60 yrs and Older,
Poverty, Disabled, and
Female Head of Household

- Above Avergae Concentration of Population > 60yrs
- Above Average Concentration of Population Below Poverty Line
- Above Average Concentration of Disabled Population
- Above Average Concentration of Female Head of Household
- Corridor Concept
- Central Arizona Project Canal
- Future Roadway
- Highway
- Other Road
- Railroad
- Gila River Indian Community

N

0 1 2 3 4 5 Miles

Data Source:
Arizona Land Resource Information System,
U.S. Department of Commerce: Bureau of the Census, 2000

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3.4.3 Natural Environment

This section describes the existing natural environment within the study area in terms of wildlife, sensitive species, plants, water resources, visual character, air quality, noise, and hazardous material concerns. The inventory of the natural environment of the study area consisted of gathering data and information from various local, state, and federal agencies, including the Arizona Game and Fish Department (AGFD) and the U.S. Fish and Wildlife Service (USFWS). The characteristics of the natural environment were also identified based on a visual survey of the study area.

3.4.3.1 Biotic Communities

The study area east of the CAP is ecotonal between the Creosotebush-Bursage series of the Lower Colorado River Valley subdivision and the Paloverde-cacti-mixed scrub series of the Arizona Upland subdivision. Natural vegetation within the study area is depicted in **Figure 3-11,** *Natural Vegetation.*

Numerous washes occur throughout the project area and contain xeroriparian habitat that is dominated by paloverde, mesquite, and ironwood trees along with many different shrub species. The dominant vegetation in the upland portions of the project area is creosotebush and triangle-leaf bursage with scattered saguaros. These two different communities (creosotebush-bursage and paloverde-cacti-mixed scrub) contain a vast diversity of plant species unique to the Arizona desert. This vast diversity of plant species in return provide habitat for a vast diversity of wildlife that live here year round. The portion of the study area west of the CAP consists mostly of agricultural lands and developed lands that no longer contain undisturbed natural vegetation or habitats. However, there appear to be two pockets of undistributed natural vegetation occurring between Ranch View Road and the CAP canal and from Germann Road to US 60. This undisturbed natural vegetation is within the creosotebush-bursage community.

3.4.3.2 Wildlife

Although a large amount of land in the western portion of the study area has been converted to agricultural fields and has been developed, natural vegetation exist providing habitat and foraging opportunities for a variety of wildlife species. The eastern portion of the study area provides cover and foraging opportunities for wildlife due to the presence of native vegetation and ephemeral washes. Wildlife likely to be present within the study area includes but is not limited to various reptiles, small birds, and mammals such as cactus wren, curve-billed thrasher, Gambel's quail, mourning dove, cottontail rabbit, white-throated woodrat, coyote, whiptail lizard, and zebra-tailed lizard. In addition, the agricultural fields and developed lands themselves provide foraging opportunities for many bird species, from smaller species such as yellow-headed blackbirds and various sparrows, to larger birds such as red-tailed hawks.

3.4.3.3 Special Status Species and Critical Habitat

For purposes of this document special status species include those that are federally listed as threatened, endangered, proposed, and candidate for listing under the Endangered Species Act of 1973, as amended. A list of federally listed threatened, endangered, proposed, and candidate species as well as state-listed wildlife of concern in Arizona which may occur within the project area was prepared from

information provided by the AGFD and the USFWS. This list and a letter of correspondence from AGFD are provided in **Appendix B**.

The study area contains scattered ironwood, paloverde, and mesquite trees, but does not provide the density or structure known to support the cactus ferruginous pygmy-owl, or columnar cacti to provide foraging habitat for the lesser long-nosed bat. The proposed corridor also does not contain any perennial or intermittent streams or surface waters that would provide suitable habitat for the southwestern willow flycatcher, bald eagle, desert pupfish, Gila topminnow, loach minnow, razorback sucker, spikedace, Gila chub, Yuma clapper rail, yellow-billed cuckoo, or the California brown pelican. The project area does not contain suitable habitat for the Mexican spotted owl. The study area does not contain suitable habitat for the Arizona hedgehog cactus, Nichol Turk's head cactus, and the acuna cactus. It is recommended that a biological assessment and/or survey be completed to determine the potential affects to these species during the design phase for each future construction project.

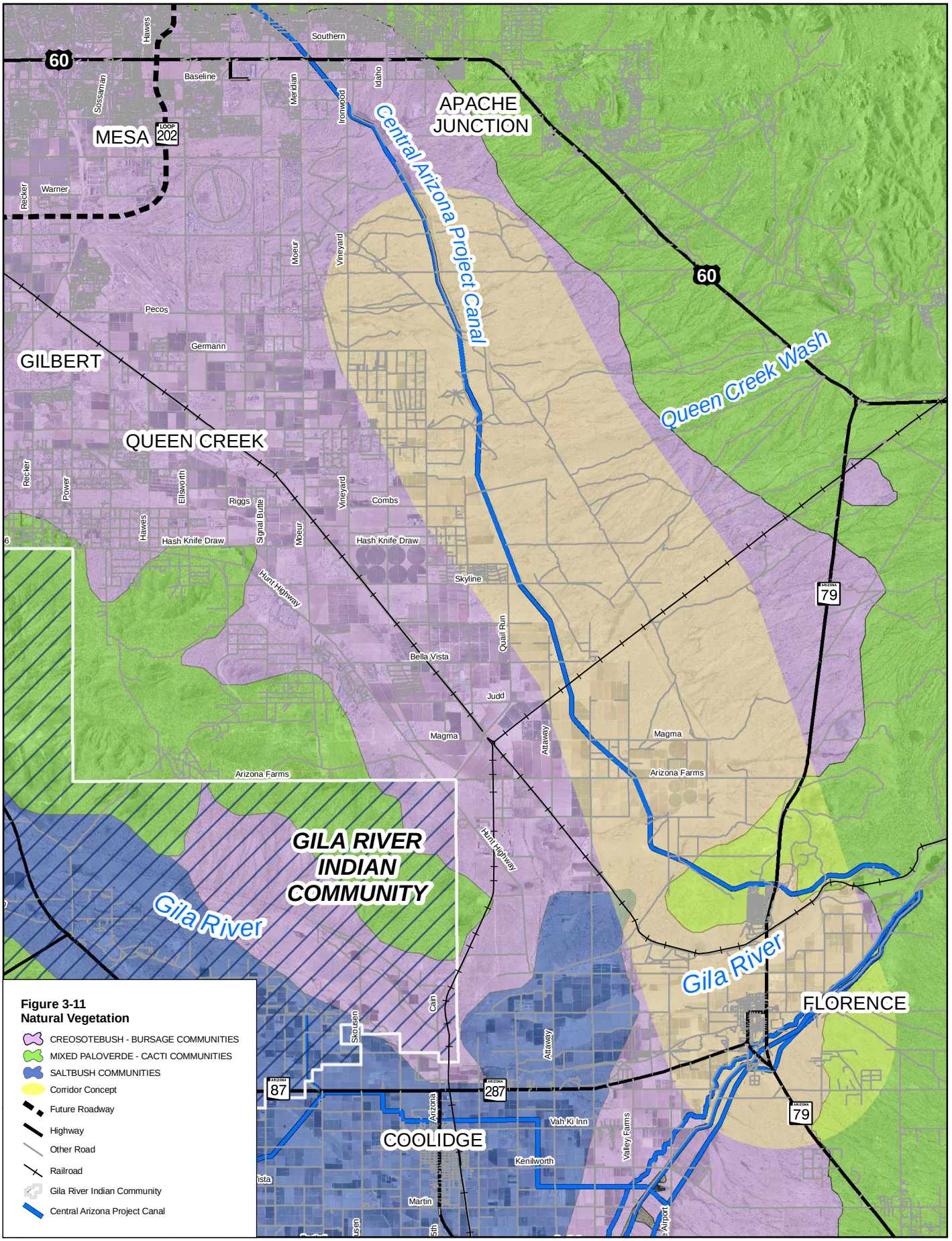
Critical habitat is the specific geographic areas, whether occupied by listed species or not, that are determined to be essential for the conservation and management of listed species, and that have been formally described in the Federal Register. Critical habitat only applies to federally listed endangered or threatened species. No designated critical habitat occurs within the study area for any of the species on the USFWS list. However, the cactus ferruginous pygmy-owl recovery team has identified habitat to the east of SR 79 and north of US 60 as a recovery zone.

The burrowing owl, protected under the Migratory Bird Treaty Act of 1918, is known to occur within the project area. The proposed corridor contains large areas of bare ground and vacant lots that provide suitable habitat for burrowing owls. Potential impacts to the burrowing owl should be evaluated during the environmental clearance process.

The Sonoran desert tortoise, an AGFD Wildlife of Special Concern in Arizona, is known to occur within two miles of the study area. The AGFD prepared guidelines for handling Sonoran desert tortoises for development projects in 1997.

3.4.3.5 Agricultural Lands

Agricultural lands compose the southern and western portions of the study area with scattered residences. Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with a minimum input of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion. Prime farmland has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods. A review of the U.S. Department of Agricultural Soil Surveys for Pinal County indicates that prime irrigated farmland exists within the study area. If federal funds are used for any roadway improvements that would require right-of-way acquisition, a farmland impact assessment may need to be performed in accordance with the Farmland Protection Policy Act.


60
Hawes
Southern
Baseline
Sossaman
Meridian
Ironwood
Idaho
APACHE JUNCTION
MESA
LOOP 202
Warner
Recker
Central Arizona Project Canal
Moeur
Vineyard
60
Pecos
Germann
GILBERT
Queen Creek Wash
QUEEN CREEK
Recker
Power
Ellsworth
Riggs
Signal Butte
Vineyard
Combs
Hawes
Hash Knife Draw
Moeur
Hash Knife Draw
Hunt Highway
Skyline
79
Quail Run
Bella Vista
Judd
Magma
Attaway
Magma
Arizona Farms
Arizona Farms
GILA RIVER INDIAN COMMUNITY
Gila River
Hunt Highway
Gila River
FLORENCE
Cain
Skousen
Attaway
87
287
Arizona
Vah Ki Inn
79
COOLIDGE
Valley Farms
Kenilworth
Martin
Airport
Figure 3-11
Natural Vegetation
CREOSOTEBUSH - BURSAGE COMMUNITIES
MIXED PALOVERDE - CACTI COMMUNITIES
SALTBUSH COMMUNITIES
Corridor Concept
Future Roadway
Highway
Other Road
Railroad
Gila River Indian Community
Central Arizona Project Canal
N
0 1 2 3 4 5
Miles
Data Source:
Arizona Land Resource Information System
PINAL COUNTY CORRIDORS DEFINITION STUDY
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3.4.4 Visual Character

The visual character of the proposed project corridor is dominated by agricultural fields and residential development in the western portion of the study area and relatively undisturbed natural desert east of the CAP canal. Due to the low topographic relief, views throughout the study area of the surrounding mountains are unimpeded. Views of the surrounding encroaching subdivision development disrupt the rural setting along the study area.

3.4.4.1 Noxious Weeds

Invasive and noxious weeds are an increasing problem. Invasive and noxious weeds rapidly displace desirable plants that provide habitat for wildlife and food for people and livestock. Invasive and noxious weeds are plants that are not native to Arizona and were introduced accidentally or intentionally. Noxious weeds are listed by state and federal law and are generally considered those that are exotics and negatively impact agriculture, navigation, fish, wildlife, and public health. Since the 1900s, weedy annuals such as cheatgrass, Russian thistle, filaree, and tumble mustard have become established in areas where grazing has greatly reduced the native vegetation. Invasive weeds such as those listed previously can alter fire regimes.

Under Executive Order 13112, dated February 3, 1999, projects that occur on federal lands or are federally funded must be:

"subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to: i) prevent the introduction of invasive species; ii) detect and respond rapidly to, and control, populations of such species in a cost-effective and environmentally sound manner; iii) monitor invasive species populations accurately and reliably; and iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded."

For any proposed roadway project, a survey will be required by a qualified noxious weed authority to determine if any noxious weeds are present within the project boundaries.

3.4.4.2 Water Resources

The U.S. Army Corps of Engineers (ACOE) regulates the discharge of dredge and fill material into waters of the U.S. under Section 404 of the Clean Water Act. Any activity that will discharge dredge or fill material into jurisdictional waters, including wetlands, will require a Clean Water Act Section 404 Permit, following the completion of a jurisdictional delineation. A jurisdictional delineation is the process of identifying the characteristics and boundaries of waters of the U.S. within a given geographic area, and must receive final approval by the ACOE.

USGS 7.5 –minute quadrangles and aerial photographs of the study area were reviewed to determine if potential waters of the U.S. are present. There are ephemeral drainage systems within the study area, including Weeks Wash, Siphon Draw, Queen Creek, the Gila River, and multiple unnamed washes. In general, ephemeral drainage systems are determined by the ACOE to be jurisdictional waters.

If it is anticipated that work will take place within or adjacent to potential waters of the U.S., a jurisdictional delineation for the project area should be completed and

submitted to the ACOE for concurrence. Following ACOE-approval of the jurisdictional delineation, the project should be reviewed to determine if a Section 404 permit is necessary. Activities that may require a permit include, but are not limited to, construction of new roads, widening of existing roads, construction or expansion of bridges, installation of corrugated-metal pipe and concrete box culverts, installation of riprap, and maintenance activities within a drainage system.

If impacts are expected to be below 0.5 acre for each water of the U.S. (i.e. each individual wash system), a Nationwide Permit Number 14 would likely be required. If impacts at a single crossing or to any individual drainage system exceed 0.1 acre, pre-construction notification must be provided to the ACOE, and the project must be authorized by the ACOE prior to the start of construction. If impacts at a single crossing or to any individual drainage system do not exceed 0.1 acre, pre-construction notification is generally not required, but may be required if a "may effect" determination is made for a threatened or endangered species and/or the presence of any historic property determined to be eligible, or which may be eligible, for listing on the National Register of Historic Places is identified. If impacts at any single crossing or to any individual drainage system exceed 0.5 acre, a Section 404 Individual Permit would be required. The Individual Permit process requires a more detailed permit application, and the ACOE review period is typically much longer than that of a Nationwide Permit.

Improvements within or near waters of the U.S. require Section 401 Water Quality Certification. In certain cases, projects are Conditionally Certified and it is not necessary to submit an application for certification to the Arizona Department of Environmental Quality; however, the Section 401 conditions listed in the applicable Section 404 permit must be adhered to in order to qualify for Conditionally Certified. Linear transportation projects are generally Conditionally Certified.

The National Pollutant Discharge Elimination System is a national program under Section 402 of the Clean Water Act that regulates discharges of pollutants from point sources into waters of the U.S. Arizona has been delegated authority from the U.S. Environmental Protection Agency to implement the permit program within the state. The state program is referred to as the Arizona Pollutant Discharge Elimination System (AZPDES). The AZPDES permit program requires an AZPDES general permit for construction activities that disturb one or more acres of land. A Stormwater Pollution Prevention Plan must be prepared as a part of the permit.

A review of Federal Emergency Management Agency Flood Insurance Rate Maps indicates 100-year floodplains are located along major drainage systems within the study area.

3.4.5 Air Quality Analysis

The Clean Air Act (CAA) Amendments and NEPA require that air quality impacts be addressed in the preparation of environmental documents. The level of effort used to evaluate these impacts may vary from a simplified description to a detailed analysis depending on factors, such as the type of document to be prepared, the project location and size, the air quality attainment status of the area, and the state air quality standards. Under the CAA, areas are classified for the degree of ambient air pollution existing at the time of

the 1990 amendments as to whether they attain the NAAQS or are in nonattainment of the standards as described below.

As required by the CAA, NAAQS have been established for the following major air pollutants: carbon monoxide, hydrocarbons, nitrogen dioxide, ozone, particulate matter smaller than 10 microns (PM_{10}), particulate matter smaller that 2.5 microns ($PM_{2.5}$), sulfur dioxides, and lead. Carbon monoxide is a colorless, odorless gas that affects the cardiovascular system. Vehicular emissions are a major source of carbon monoxide. Ozone is created through a complex reaction of hydrocarbons and oxides of nitrogen with sunlight as a catalyst. Ozone affects the respiratory system; and vehicle emissions, power plants, and service stations are major sources. High concentrations of ozone are common in the Phoenix area during the summer. Nitrogen dioxide is a gas with a yellowish orange to reddish brown appearance, depending on its concentration, which impairs the respiratory system. Major sources of nitrogen dioxide are power plants and vehicle emissions. Particulate matter refers to small aerosols that may cause irritation and damage to the respiratory system. Vehicle emissions and the resuspension of road dust by vehicular activity are common sources. Sulfur dioxide is a colorless gas frequently derived from the combustion of sulfur-containing fuels. It primarily affects the respiratory system and major sources are coal- and oil-fired power plants. Lead and its compounds damage the cardiovascular, renal, and nervous systems. The primary source of lead is vehicular emissions associated with the use of leaded gasoline. These standards have also been established as the official ambient air quality standards for the state of Arizona. The "primary" standards have been established to protect the public health. The "secondary" standards are intended to protect the nation's welfare and account for air pollutant effects on soil, water, visibility, materials, vegetation, and other aspects of the general welfare.

In 1987, the standard for particulate matter was revised by EPA from total suspended particulate matter, which are aerosols with diameters ranging from up to approximately 45 microns in size, to those aerosols with aerodynamic diameters of 10 microns or less. This new standard is referred to as PM_{10}.

In July 1997, EPA revised the standards for both particulate matter and ozone. EPA revised the PM_{10} standard, added standards for particulates with diameters of $PM_{2.5}$, and also revised the method for the determination of exceedences. For ozone, the 1-hour standard was replaced with an 8-hour standard. In addition, the standard for concentration of ozone was lowered from 0.12 ppm to 0.08 ppm, and the method for the determination of exceedences was also revised. The effective date of those final rules was September 16, 1997.

3.4.5.1 Nonattainment Areas

The CAA Amendments of 1990 authorized the EPA to designate areas as nonattainment, and to classify them according to their degree of severity. This classification initiates a set of control requirements designed to achieve attainment by a specified date. A nonattainment area is an area in which compliance with the NAAQS has not been established for one or more pollutants. States that fail to attain the NAAQS for any of the criteria pollutants are required to submit State Implementation Plans, which outline those actions that will be taken to attain compliance. The northern portion of the study area at US 60 is located within the nonattainment area for PM_{10}.

3.4.5.2 Conformity

Since 1977, federal agencies and Metropolitan Planning Organizations have been required by Section 176c of the CAA to ensure that all transportation projects conform to the approved air quality State Implementation Plans. The CAA enacted in 1990 defined conformity to a State Implementation Plan as meaning conformity to a State Implementation Plan's purpose of eliminating or reducing the severity and number of violations of the NAAQS. The conformity determinations for federal actions related to transportation projects must meet the requirements of Title 40 of the Code of Federal Regulations (CFR) Parts 51 and 93.

Portions of the Pinal County Corridor study area is in air nonattaninment areas for PM_{10}, which have transportation control measures in the State Implementation Plans and Federal Implementation Plan. A given individual project will need to be included in an approved transportation improvement plan for at least one year, and no more than three years, prior to construction. That Transportation Improvement Plan will have to be approved by the Federal Highway Administration and EPA as conforming to the State Implementation Plan, and the Federal Implementation Plan will have to conform.

During a construction project, disturbance of the soil by heavy equipment would increase fugitive dust and, if uncontrolled, would affect local air quality. In addition, construction-related traffic delays, combined with exhaust emissions from constructed-related equipment, may elevate levels of pollutants. Such impacts would be temporary and would be eliminated once construction is complete. Any construction activity located within Maricopa County must adhere to the local air quality rules and ordinances, including Maricopa County Rules 310 and 310.01.

3.4.6 Noise

Noise, defined as unwanted or excessive sound, is an undesirable by-product of our modern way of life. While noise emanates from many different sources, transportation noise is perhaps the most pervasive and difficult source to avoid in society today. The Federal-Aid Highway Act of 1970 mandates the FHWA to develop noise standards for mitigating highway traffic noise. The FHWA regulations for mitigation of highway traffic noise in the planning and design of federally aided highways are contained in Title 23 of the United States Code of Federal Regulations Part 772. The regulations require the following during the planning and design of a highway project: 1) identification of traffic noise impacts; examination of potential mitigation measures; 2) the incorporation of reasonable and feasible noise mitigation measures into the highway project; and 3) coordination with local officials to provide helpful information on compatible land use planning and control. The regulations contain noise abatement criteria, which represent the upper limit of acceptable highway traffic noise for different types of land uses and human activities. The regulations do not require that the abatement criteria be met in every instance. Rather, they require that every reasonable and feasible effort be made to provide noise mitigation when the criteria are approached or exceeded.

ADOT has adopted a State Policy, the *Noise Abatement Policy for Federal Aid Projects*, which is consistent with FHWA policy. These policies outline noise impacts. A traffic noise impact occurs when either of the following condition occurs:

- The predicted traffic noise level approaches or exceeds the noise abatement criteria shown in **Table 3-4**. ADOT defines approach as being 3dBA below the appropriate NAC.
- The predicted traffic noise level substantially exceeds the existing noise level. ADOT defines substantial in this context as 15dBA or greater.

Table 3-4 – Noise Abatement Criteria

Activity Category	Description	Leq(h)
A	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.	57 dBA (exterior)
B	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.	67 dBA (exterior)
C	Developed lands, properties, or activities not included in Categories A or B	72 dBA (exterior)
D	Undeveloped lands.	None
E	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.	52 dBA (interior)

Source: Title 23, CFR Part 772

If potential traffic noise impacts are identified, noise abatement is considered and implemented, if it is found to be both reasonable and feasible. The views of the impacted residents are a major consideration in reaching a decision on the reasonableness of abatement measures to be provided. When noise abatement measures are being considered, every reasonable effort is made to obtain substantial noise reductions. Substantial noise reductions have been defined by State highway agencies to typically range from 5 to 10 dBA.

Highway construction noise is often viewed by the public as being short term and a necessary price for growth and improvement. Highway construction noise should generally be addressed in a qualitative, rather than quantitative, manner commensurate with the scope of the highway project. Construction noise levels may be predicted, if warranted. If potential construction noise impacts are identified, a common sense approach should be utilized to incorporate appropriate abatement measures into the highway project.

3.4.7 Hazardous Materials

A search was performed of hazardous materials (hazmat) databases and lists made available by the Arizona Department of Environmental Quality (ADEQ) for evidence of potential hazmat concerns within or immediately adjacent to the study area. The following ADEQ resources were utilized:

- Underground Storage Tank Database
- Leaking Underground Storage Tank Database

- § Hazardous Material Incident Logbook Database
- § Superfund Programs Section website, included search for National Priority List, Water Quality Assurance Revolving Fund (WQARF) and potential WQARF, and Department of Defense sites
- § Arizona Hazardous Waste Treatment, Storage, and Disposal Facilities List

3.4.7.1 Underground Storage Tanks

The results of the underground storage tank (UST) database search indicate that thirty-eight sites with UST records are located within or immediately adjacent to the study area. The results are summarized in the **Table B-1** in **Appendix B**.

3.4.7.2 Leaking Underground Storage Tanks

The results of the leaking underground storage tank (LUST) database search indicate that sixteen sites with LUST case files are located within or immediately adjacent to the study area. The results are summarized in **Table B-2** in **Appendix B**.

3.4.7.3 Hazardous Material Incident Logbook

Eighteen hazardous material incidents occurred within or immediately adjacent to the study area, as recorded in the *Hazardous Material Incident Logbook*. The records are summarized in the **Table B-3** in **Appendix B**.

3.4.7.4 Superfund Sites

According to the ADEQ Superfund Programs Section, no National Priority List, WQARF, potential WQARF, or Department of Defense sites are located within 1 mile of the study area.

3.4.7.5 Treatment, Storage, and Disposal Facilities

According to the *Arizona Hazardous Waste Treatment, Storage, and Disposal Facilities List*, no hazardous waste treatment, storage, or disposal facilities are located within or immediately adjacent to the study area.

3.4.7.6 Other Environmental Sites

Two landfills are located within the study area according to Pinal County's Public Works website. Apache Junction Landfill (4050 South Tomahawk Rd, Apache Junction) is located in the northern portion of the study area; Ironwood Landfill (12720 Hwy 287, Florence) is located in the southern portion.

3.4.8 Section 4(f) of the Transportation Act

Section 4(f) of the Department of Transportation Act of 1966 stipulates that Federal Highway Administration may not approve the use of land from a significant publicly owned park, recreation area, or wildlife and waterfowl refuge, or any significant historic site that is either listed, or eligible for listing on the Register under the following Criterion stated in 49 U.S.C., Section 303:

(a) "It is the policy of the United States Government that special effort be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.

(b) The Secretary of Transportation shall cooperate and consult with the Secretaries of the Interior, Housing and Urban Development, and Agricultural, and with the States, in developing transportation plans and programs that include measures to maintain or enhance the natural beauty of lands crossed by transportation activities or facilities.

(c) The Secretary may approve a transportation program or project requiring the use of publicly owned land or a public park, recreation area, or wildlife and waterfowl refuge, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, recreation area, refuge, or site) only if-

1) There is no prudent and feasible alternative to using that land; and
2) The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use."

The study area does not contain any publicly owned park, recreation area, or wildlife and waterfowl refuge. However, entrances to these types of facilities do exist off the project corridor. Therefore, future coordination with the appropriate agencies and departments is recommended at the entrances to these facilities.

3.4.10 Cultural Resources

An archaeological assessment and cultural resources overview was performed for the environmental feasibility study area[9]. The purpose of the overview was to identify any cultural resources sites that would significantly impact the definition of the future corridor. The full text of the *Archaeological Assessment and Cultural Resources Overview* is not included in this report but is available separately. An over-view of areas that have been identified as containing a high concentration of cultural resources is depicted in **Figure 3-12**, *Cultural Resources*.

Nearly 100 archaeological survey projects have identified 230 archaeological sites that are listed on the AZSite database and 31 properties that are listed on the NRHP. The prehistoric and historic site that have been identified in the study area range from surface scatters of prehistoric artifacts to large Hohokam village complexes along Queen Creek and the Gila River that contain thousands of significant features and represent some of the largest prehistoric site complexes in central Arizona. Historic sites in the study area represent transportation corridors (roads and railroads), mining, farming, and homesteading activities of the past century in the region. Individual properties listed on the NRHP include historic buildings and a historic district in the Town of Florence and the prehistoric and historic Adamsville site complex west of Florence.

The previous surveys listed in the AZsite database date from 1971, and are all the result of compliance driven clearance surveys associates with state and federal legislation that protect cultural resources. Many of the 239 individual sites in the AZSite database have been determined to be eligible or not eligible to the NRHP and have been either investigated through controlled excavation projects such as the Salt-Gila Aqueduct project and the Escalante Ruin Project, or they have been avoided by construction and development projects and thus have been preserved.

[9] An Archeological Assessment and Cultural Resources Overview of the Pinal County Transportation Corridors Definition Study Area in Northern Pinal County, Arizona. Soil Systems Technical Report No. 05-32. July, 2005.

The density and diversity of the cultural resources in the study area is high. Although only a small portion of the entire study area has been systematically surveyed, patterns of site distribution can be observed based on the existing data. The Queen Creek floodplain and the Gila River corridor are the areas of highest site density. The largest prehistoric habitation sites are clustered along these waterways. Historic resources are clustered along the Gila River and the existing transportation corridors that follow the historic wagon roads and the modern highways and railroads.

As residential and commercial development spreads into northern Pinal County, and as transportation corridors are constructed to service the rapidly growing population, compliance with existing state and federal legislation concerning cultural resources must be part of the planning process. The Corridor Concept and the North-South corridor in particular, will have to contend with the high site densities along Queen Creek and the Gila River that cut east to west across the study area. East to west transportation corridors through the study area will encounter cultural resources, but the number and significance of the cultural resources will be less than in the area between the Queen Creek floodplain and an area 2 miles north of the Gila River and the area north of the Queen Creek floodplain.

It is expected that any transportation corridors selected across the study area will require additional archaeological survey. The site density in the study area indicates that significant archaeological sites eligible to the NRHP will be present. Furthermore, it is estimated that at least 50 percent of any newly recorded archaeological sites will require testing and/or data recovery investigations to mitigate the potential impacts related to the construction of the new transportation corridors. However, the CAP right-of-way has already been cleared of cultural resources. Construction of the North-South corridor parallel to the CAP right-of-way could minimize costly cultural resources clearance. Regardless, compliance with cultural resources laws will be a substantial component of any transportation corridor that is selected. The costs, particularly along the Gila River, will be substantial. Cultural resources clearance and compliance with existing legislation requires adequate lag-time that must be factored into the planning process.

3.4.11 Summary of Environmental Opportunities and Constraints

This section contains a summary of the social and environmental issues that should be considered during future corridor development. A summary of environmental opportunities and constraints is presented in **Table 3-5.**

- During the Design Concept Report or Final Design new scoping letters should be submitted to the AGFD and USFWS and a biological evaluation should be completed to determine the potential affects to threatened and endangered species.
- It may be necessary to conduct a survey for burrowing owls and Sonoran desert tortoise.
- For any proposed roadway project, a survey will be required by a qualified noxious weed authority to determine if any noxious weeds are present within the project boundaries.
- A jurisdictional delineation would need to be conducted to determine waters of the United States.
- A Section 404 Permit would be required if the project impacts waters of the United States.
- A noise analysis would be required if the proposed roadway is located near noise receptors.

- If new right-of-way is to be acquired for future construction, a Phase I Environmental Site Assessment should be conducted to determine if potential hazmat concerns are Recognized Environmental Conditions.
- During the Design Concept Report or Final Design, the demographic composition and Title VI/Environmental Justice should be reevaluated and block groups be included in this reevaluation.
- The density and diversity of the cultural resources in the study area is high. Although only a small portion of the entire study area has been systematically surveyed, patterns of site distribution can be observed based on the existing data. The Queen Creek floodplain and the Gila River corridor are the areas of highest site density.
- The Corridor Concept and the North-South corridor in particular, will have to contend with the high site densities along Queen Creek and the Gila River that cut east to west across the study area.
- Furthermore, it is estimated that at least 50 percent of any newly recorded archaeological sites will require testing and/or data recovery investigations to mitigate the potential impacts related to the construction of the new transportation corridors.
- The CAP right-of-way has already been cleared of cultural resources.

Table 3-5 – Summary of Environmental/Social Opportunities and Constraints

Corridor Definition Alternative	Environmental/Social Opportunities	Environmental/Social Constraints
North-South corridor from Williams Gateway Corridor (Frye Rd. alignment) **to Arizona Magma Railroad** near Judd Rd **Southern Connection Alternative 1**: North-South corridor from Arizona Magma Railroad near Judd Road to connection with SR-79 **Southern Connection Alternative 2**: North-South corridor from Arizona Magma Railroad near Judd Road to connection with SR-287 near Valley Farms Road.	• The CAP right-of-way has already been cleared of cultural resources. • Construction of the corridor to the west of the CAP would have the least amount of environmental impacts, as the area to the east of the CAP remains largely undisturbed and thus provides more suitable habitat for wildlife and biotic communities.	• The density and diversity of the cultural resources in the study area is high. Although only a small portion of the entire study area has been systematically surveyed, patterns of site distribution can be observed based on the existing data. The Queen Creek floodplain and the Gila River corridor are the areas of highest site density. A connection that crosses, or approaches the Gila River will encounter a significant number of cultural resources. • 38 sites with underground storage tanks (UST) records are located within or immediately adjacent to the study area. The results are summarized in the **Table B-1** in **Appendix B**. • The results of the leaking underground storage tank (LUST) database search indicate that sixteen sites with LUST case files are located within or immediately adjacent to the study area. The results are summarized in **Table B-2** in **Appendix**. • Eighteen hazardous material incidents occurred within or immediately adjacent to the study area, as recorded in the Hazardous Material Incident Logbook. The records are summarized in the **Table B-3** in **Appendix B**. • Two landfills are located within the study area. Apache Junction Landfill (4050 South Tomahawk Rd, Apache Junction) is located in the northern portion of the study area; Ironwood Landfill (12720 Hwy 287, Florence) is located in the southern portion. • The burrowing owl is known to occur within the project area. Potential impacts to the burrowing owl should be evaluated during the environmental clearance process. • The Sonoran desert tortoise, an AGFD Wildlife of Special Concern in Arizona, is known to occur within two miles of the study area. • A review of the U.S. Department of Agricultural Soil Surveys for Pinal County indicates that prime irrigated farmland exists within the study area. If federal funds are used for any roadway improvements that would require right-of-way acquisition, a farmland impact assessment may need to be performed in accordance with the Farmland Protection Policy Act. • Populations considered in Title VI are relatively high within the study area. Additional considerations should be given to Title VI populations as the corridor is developed. • A Section 404 Permit would be required if the project impacts waters of the United States.

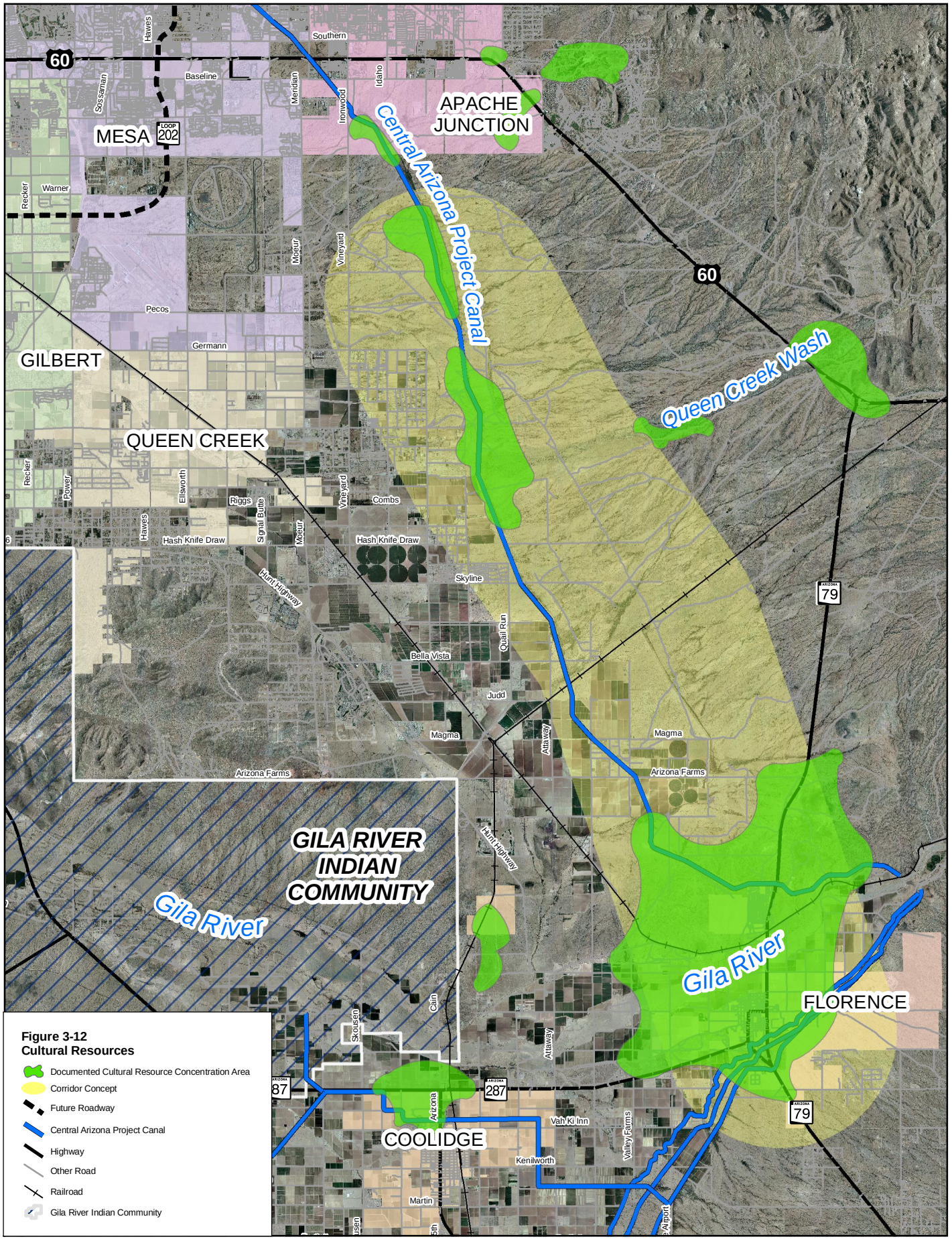

Figure 3-12
Cultural Resources

- Documented Cultural Resource Concentration Area
- Corridor Concept
- Future Roadway
- Central Arizona Project Canal
- Highway
- Other Road
- Railroad
- Gila River Indian Community

N

0 1 2 3 4 5 Miles

Data Source:
Arizona Land Resource Information System

PINAL COUNTY CORRIDORS DEFINITION STUDY

Kimley-Horn and Associates, Inc.

ADOT

3.5 Land-Use Compatibility Opportunities and Constraints

This section documents land-use compatibility opportunities and constraints associated with the corridor definition alternatives.

Land use compatibility criteria include issues of corridor compatibility with jurisdictional development and local land use plans. An outcome of this analysis is how the Corridor Concept alternatives fit with adopted transportation and land use plans and what – if incompatibilities are identified – how adopted transportation and land use plans must be modified to accommodate the corridors.

3.5.1 Land Jurisdiction and Ownership

Land jurisdiction refers to the authority to regulate land uses. Land ownership is identified as public or private ownership. The study area contains property within portions of unincorporated Pinal County, as well as land areas currently incorporated into the communities of Apache Junction and Florence. Apache Junction land area occupies the northern portion of the study area. Further to the south, the Town of Florence provides land jurisdiction. The middle portion of the study area consists of unincorporated Pinal County that is made up of State Trust land. However, there are substantial "gaps" of unincorporated Pinal County land located in this region of the study area (**Figure 3-6**, *Land Ownership*).

The study area contains two land parcels owned by the by the United States Department of Defense. The first parcel is bounded on the north by Arizona Farms Road, on the south by the Copper Basin Railroad. The parcel extends 1-mile to the east of SR-79. The second military parcel is located adjacent to the CAP canal and bounded by Ocotillo Road alignment on the north, Pima Road alignment on the south, Tomahawk Road alignment on the west, and Goldfield Road alignment on the east. The Rittenhouse Auxiliary Field (closed) is located within the study area north of Queen Creek.

The Bureau of Land Management controls several land parcels within the study area, most of which are located adjacent to the CAP. Pinal County also owns large tracts of land located adjacent to the San Tan Regional Mountain Park.

3.5.2 Existing Land Use

Both alternative corridor definitions (connection to SR-79 and a connection to SR-287) will impact to some degree currently planned residential developments and master planned communities. A corridor connection to SR-79 affords the most opportunity to minimize wide-scale impact to existing and future master planned communities. In fact, a corridor definition could potentially be identified that would bypass most, it not all, of these communities.

A corridor connection to SR-287 provides fewer opportunities to avoid wide-scale impact to future master planned communities and residential development However, collocation of the North-South corridor with the SRP 500 kV line could consolidate the infrastructure that would require mitigation, and provide less-overall impact to future development than would a transportation corridor on a separate alignment.

3.5.3 Summary of Land Use and Local Jurisdiction Perspectives Opportunities and Constraints

A summary of opportunities and constraints from a land-use and local jurisdiction perspective is presented in **Table 3-6.**

Table 3-6 – Summary of Land-use and Local Jurisdictions Opportunities and Constraints

Corridor Definition Alternative	Land Use and Local Jurisdictions Perspectives Opportunities	Land Use and Local Jurisdictions Perspectives Constraints
North-South corridor from Williams Gateway Corridor (Frye Rd. alignment) **to Arizona Magma Railroad** near Judd Rd	• Agency and stakeholders have expressed support for collocation of the corridor with the CAP, to the extent feasible, to create a 'transport and utility corridor'. This corridor would also include the 500 kV line, and the railroad in some segments. This provide the following benefits: - Bisects the study area and serves future developments both east and west of the CAP. - Provides opportunity to integrate land use and freeway concepts on currently undeveloped State Trust Land. ASLD is interested in identifying potential locations of interchanges to integrate into their planning concepts. - Minimizes mitigation required as compared to separate power line and transportation corridors. • The majority of the corridor definition alternative is located on State Trust Land. This provides the opportunity for ADOT to identify and purchase right-of-way in advance of development. • Arizona State Land Department is currently conducting an infrastructure planning study for the Superstition Vistas and Lost Dutchman Heights areas. • Location of the North-South corridor on the west side of the CAP is consistent with ASLD land use plans. • This facility is consistent with Pinal County perspectives and plans. Pinal County is interested in combining the corridor with a linear trail system. • Terminus of freeway facility at Williams Gateway corridor is consistent with City of Apache Junction plans to develop a parkway facility through a commercial area that connects to the US 60.	• The US Bureau of Reclamation owns significant parcels of land that are located mostly on the east side of the CAP. In addition, large drainage and flood control easement exists on the east side of the CAP, limiting corridor opportunities directly to the east of the CAP. • The United States Military owns two parcels within the study area: 1) Florence Military Reservation is generally bounded on the north by Arizona Farms Road, on the south by the Union Pacific/Copper Basin Railroad. The parcel extends 1-mile to the east of SR-79. 2) Rittenhouse Auxiliary Airfield is located adjacent to the west side of the CAP and bounded by the Ocotillo Rd alignment on the north, Pima Rd alignment on the south, Tomahawk Rd alignment on the west, and Goldfield Road alignment on the east. • Because most of the corridor definition is located on State Trust Land, arterials to provide access to and from the corridor will likely not be developed until the ASLD land is sold for development. • Access to the corridor from the east side of the CAP will require crossings to be constructed. • While a corridor alignment can ultimately be identified that would minimally impact existing and proposed residential development, the following master planned communities may be impacted: - Castlegate - Lorado Ranch - Quail Run Estates - Bella Vista - Sonoran Village

Table 3-6 – Summary of Land-use and Local Jurisdictions Opportunities and Constraints (continued)

Corridor Definition Alternative	Land Use Opportunities	Land Use Constraints
Southern Connection Alternative 1: North-South corridor from Arizona Magma Railroad near Judd Road to connection with SR-79	• A connection to SR-79 is more consistent wit goals and objectives of the Town of Florence. A definition could be identified that would minimally impact proposed master planned communities. • This alternative provides some opportunity to identify an alignment to minimize impact to existing and proposed master planned communities. • Magma Dam/Flood Retarding Structure may provide opportunities for corridor alignment. The NCRS recently retained a consultant to evaluate the condition of the structures. If it is determined that the structure requires reconstruction, corridor facility may be considered in the design.	• A new hospital is planned south of Hunt Highway, south of Main Street in Florence. Corridor definition would need to circumvent this facility. This alternative may also significantly impact Arizona Department of corrections facilities located on SR-79. • While a corridor alignment can ultimately be identified that would minimally impact existing and proposed residential development, the following master planned communities may be impacted: - Ocotillo Verde - Caballero - Magma Ranches II - Magma Ranches - Sky View Farms - Sun Valley Farms - Arizona Farms - Dobson Farms
Southern Connection Alternative 2: North-South corridor from Arizona Magma Railroad near Judd Road to connection with SR-287 near Valley Farms Road.	• Connection to SR-287 near Valley Farms Road positions the corridor for more direct access to a future extension of corridor to Coolidge airport. • However, future definitions could be identified to provide access to the airport if the corridor is connected to SR-79. • Enables collocation of the North-South corridor with the approved route of the 500 kV line. • City of Coolidge is preparing a General Plan Amendment that will enable preservation of a corridor for a future transportation facility on Clemens Road. A connection to SR-287 is more consistent with these plans than is a connection to SR-79. In addition, Westcor has purchased a large parcel of property near the Clemens Road alignment. A connection to SR-287 may improve access to and from the mall. • An additional crossing the Gila River is important for future mobility and accessibility within the study area.	• Connection to SR-79 disconnects the North-South corridor from 'straight-line' path connectivity to Clemens Road alignment, which is envisioned by City of Coolidge to become a major transportation facility. • Corridor alignment would likely impact the following existing and proposed master planned communities: - Dobson Farms - Arizona Farms - Anthem - Merrill Ranch - Wild Horse Estates - Mesquite Groves - Oasis at Magic Ranch - Sonoran Village • Collocation of the North-South corridor with the 500 kV line creates a large 'foot-print' area that may require a very wide right-of-way to accommodate utilities, the CAP, and the railroad.